

Leather. Stretchable leather, controlled by an elastic backing, which was introduced in 1938, has been further developed and is meeting with an increased demand. Among the newer developments are processes for making shoe lining and other leathers sanitary and antiseptic to prevent the growth of bacteria and thus promote cleanliness and elimination of offensive effects from foot perspiration.

Methods by which leather affected by poison gases may be decontaminated, have been devised in England. Nearly all types of leather may be freed from effects of mustard gas by immersion for six hours in water at 120° to 130°F. Alum tanned leather, however, will not stand this treatment.

In seeking factors that might cause failure of white shoe leathers, studies have been continued to include the effect of various constituents of shoe finishes, polishes and cleaners upon the tensile strength and stretch of the leather. Sulphonated oils, certain gums, and glycerine tend to maintain a higher moisture content in the leather and, consequently, increase its strength and stretch. Materials such as ethyl alcohol and carbon tetrachloride that tend to dry out the leather and remove fats, cause an especially serious lowering of the strength and stretch of the leather. Shellac cut with borax decreases both strength and stretch. Turpentine, ethyl acetate and petroleum naphtha increase tensile strength and decrease stretch.

A study of currying leather has shown that the gummy spew which sometimes forms on vegetable tanned leather is due to oxidation and gelation of the cod oil present. This formation is

The measure of the stretching of calfskin leather through an adaptation of the Mullen tester, long used for determining the bursting strength of paper, has been proposed as an index of quality that might be particularly significant in predicting the behaviour of leather in lasting and other operations in the shoe factory. Splitting a leather lowers resistance to stretch far more than can be accounted for by the decrease in thickness. Certain cracks occur either because of low resistance to stretching or a low extensibility of the grain. An inelastic grain can result from overloading with tanning, dyeing, or finishing materials.

As a result of the continual search for raw materials by these countries facing a shortage of staple hides and skins, Japan is reported to have developed a simple method for tanning whale skins. The area of each skin approximates 0.7 of a square foot. The leather is said to be suitable for handbags and women's shoes. The commercial feasibility of using these skins is doubtful, however, since they command in Japan for the preparation of several popular dishes as high a price as the meat. Whale hides are also being tanned. Their appeal lies in the large supply from a single hide. It is claimed that the hide of a small whale yields as much leather as ten cattlehides, whereas that of a large whale is equivalent to 100 cattlehides. Italy, like Germany and Japan, has also turned its attention to the tanning of fishskins, with the newly established industry located at Milan. Skins of the dentex, carp, grayling, ray and eel, and even of the imported dried codfish are used.

A new process and product has been developed in Australia for making carpets of sheepskins. The skins are tanned and dyed with the wool on and cut when necessary to provide patterns in various colours. The skin side is provided with a special covering and bound so that no pad is required.

The finished product is said to resemble a deep pile Chinese carpet.

Among the novelties in leather are ash trays, humidors and serving trays made from chrome leather thoroughly impregnated with a wax and then pressed into shape and finished.

The leading export countries in 1938 according to dollar value at the average annual exchange rate for the year were: United Kingdom \$16,113,000; United States \$12,061,000; Germany \$10,510,000; and France \$9,951,000. (R. W. F.; J. G. S.)

Lebanon: see FRENCH COLONIAL EMPIRE.

Lederer, Emil (1882-1939), German economist, was born in Pilsen, Bohemia, on August 22. He received his doctorate in law at the University of Vienna and his doctorate in political science at the University of Munich. In 1912, after two years of co-editorship with Werner Sombart of a sociological journal he became a lecturer at the University of Heidelberg. His *White Collar Workers in the Modern Economy* (1912) was one of the first books to call attention to the peculiar economic problems of middle-class office workers. His chief work was *Principles of Economic Theory*, published in 1922. He remained as full professor of economics at Heidelberg until 1923, when he went to the University of Tokyo as visiting professor for two years. His advocacy of a modified Marxism gained him the enmity of the Nazis, who expelled him from Germany in 1933. He went to the United States, where he helped his friend, Dr. Alvin Johnson, organize the Graduate Faculty of the New School for Social Research at Yale university. Lederer became first dean of this "university in exile," and served for two years. In the United States he published *Japan in Transition*, written in collaboration with his wife. He died at New York city on May 29.

Leeward Islands: see WEST INDIES, BRITISH.

Table 1—Estimated Number of Staple Hides and Skins Tanned
(1922's omitted)

	1929	1935	1936	1937	1938	1939
WORLD						
Cattle hides	161,614	163,509	165,223	163,273	161,515	163,142
Calf and kipskins	74,660	79,452	75,012	74,166	72,995	74,545
Goat and kidskins	27,664	24,426	29,122	23,557	28,203	29,276
Sheep and lambskins	96,211	91,371	99,729	99,213	88,697	99,227
UNITED STATES						
Cattle hides	19,146	21,032	22,628	22,275	19,319	21,397
Calf and kipskins	15,964	14,149	13,127	12,410	12,599	13,273
Goat and kidskins	55,686	48,250	47,459	46,099	37,283	49,899
Sheep and lambskins	38,985	38,695	37,944	34,255	28,959	36,412
GERMANY						
Cattle hides	9,116	9,074	9,610	9,217	9,259	9,314
Calf and kipskins	19,317	17,762	12,436	13,996	12,167	11,116
Goat and kidskins	8,512	7,775	7,527	8,313	6,459	7,687
Sheep and lambskins	19,994	9,168	19,608	19,411	9,265	9,955
UNITED KINGDOM						
Cattle hides	19,612	9,262	11,663	11,313	10,060	10,287
Calf and kipskins	7,319	6,351	6,918	7,617	7,229	8,133
Goat and kidskins	8,516	12,015	12,613	13,665	13,195	12,610
Sheep and lambskins	9,115	9,993	7,997	8,912	8,610	8,855
FRANCE						
Cattle hides	9,927	6,996	6,159	7,248	7,599	7,220
Calf and kipskins	7,069	6,713	7,095	7,512	7,295	8,055
Goat and kidskins	11,992	6,220	7,165	7,331	8,210	9,177
Sheep and lambskins	12,955	11,993	19,815	11,317	11,612	12,545

accelerated by the presence of catalytically active metals, a high content of oil, and exposure to light and heat. It is prevented by water solubles in the leather and by free fatty acids either in the currying oils and greases, or formed afterwards. Spewing also can be prevented by the addition of anti-oxygens to the cod oil.

In continuation of studies to develop physical tests for measuring the properties of leather, a comparison has been made of five machines of different design proposed for determining the resistance of sole leather to abrasion. Eighteen leathers were used and all machines showed a general tendency to rate them in a similar order. Choice of abrasive had a greater effect on the results than the construction of the machine, and a machine measuring abrasion only appears to give as good an indication of the wear of the leather as one that attempts to emulate action of the foot.